



Former Strathmore Mill

20 Canal Road

Montague, Massachusetts

ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

Prepared By

The Town of Montague Planning and Conservation Department

DRAFT

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SECTION 1

INTRODUCTION

This Analysis of Brownfields Cleanup Alternatives (ABCA) has been prepared for the former Strathmore located on 20 Canal Road in the Town of Montague, Franklin County, Massachusetts. This ABCA report addresses the health and safety issues associated with the vacant mill buildings. The purpose of this evaluation is to fulfill the ABCA requirement of the Brownfields Revolving Loan Fund by describing the remedy evaluation process, the remedy selected, and the rationale for that selection.

Between 2005 and 2015, Phase I and II and Hazardous Building Materials Assessments (HBMA) were conducted of the mill site. Those investigations were funded using Franklin Regional Council of Governments (FRCOG) Environmental Protection Agency (EPA) Brownfields Assessment grants. A summary of the findings of those investigations is presented below.

1.1 Phase I ESA

1.1.1 Site Description

The site is currently owned by the Town of Montague, which took the property from Swift River Group via tax title, in February 2010. The parcel is located at 20 Canal Road in the Turners Falls section of the Town of Montague, Franklin County, Massachusetts and is zoned as Historic Industrial. As previously noted, a Locus Map is provided as Figure 1 in Appendix A. According to the Montague Assessor's office, the site is listed as Map 2, Block 0, Lot 01, as indicated on the Assessors card and map. A copy of the Assessors card and map are provided in Appendix B. The geographical location of the site is 42°36'33" north latitude and 72°33'39" west longitude. The Universal Transverse Mercator (UTM) coordinates for the site are 700073.617 meters Easting and 4720080.018 meters Northing. The site occupies an area of approximately 2.85 acres and is primarily covered by the mill building. The subject site consists of 10 contiguous buildings which range in height from four to six stories. The two lower stories are below the elevation of the adjacent canal. The building has a footprint of approximately 55,000 square feet and was constructed in 1877 as a mill. The site is serviced by town sewer and water. The building is generally constructed of brick with rolled roofing materials. The mill originally consisted of 11 mill buildings, but in May 2007, Building 10, located on the western side of the property, burned to the ground. The fire was started when an employee of the previous owner (Western Properties, Inc.) was removing copper wire from the building.

2.1.2 Surrounding Property Description

The site is located between the Connecticut River and a hydroelectric canal. To the northeast was the Indeck Co-Generation Plant owned by Turners Falls Limited Partnership. The majority of the plant structures have been removed, however, several walls and foundations are still located on the property. The previous owner of the mill stated that the plant has been shut down since the mid-1990s. Southworth Paper is located to the southwest of the site. Residences, a bike trail, and the former Sweeney Ford site are located across the canal to the south. The Sweeney Ford site is

vacant, but is being used to showcase community artwork. The opposite bank of the Connecticut River, to the north, is steeply sloped, undeveloped land. The entire site is located within the 200 foot riverfront area as defined by the MA Riverfront Protection Act.

1.1.2 Site History

Town of Montague records indicate that the mill was constructed in 1877 with subsequent additions added in 1892, 1906, and 1918. The 1884 Sanborn Fire Insurance maps indicate that the property was occupied by the John Russell Cutlery Company and Montague Paper Company at that time. Industrial processes conducted included machining, stamping, forging, grinding, finishing, pulping, cutting, and bleaching. These operations continued at the property through at least 1895.

The 1902 Sanborn maps indicate that the John Russell Cutlery Company continued to occupy the southwest portion of the property in 1902, but the building area formerly occupied by Montague Paper was subsequently occupied by International Paper through at least 1914. The 1940 maps indicate that the entire complex was occupied by Keith Paper at that time. The cutlery operation had been removed and processes related to papermaking were distributed throughout the site. The Turners Falls city directories indicate that Keith Paper occupied the site through at least 1945 and Strathmore Paper occupied the site from 1960 through the mid 1980's at which time it was purchased by International Paper. International Paper closed the mill in the mid 1990's. Space was subsequently rented to small commercial businesses until it was purchased by Western properties, LLC in January 2003. Western Properties used the mill for the storage of large quantities of waste paper. In 2007, ownership of the Strathmore Mill was transferred to Swift River Group. The developer's plan was to develop a film school and studios, and ancillary uses, at the mill, an estimated \$32 million project. Also in 2007, building 10 was destroyed due to an arson fire. Most of the damages were contained to that one structure. The Town invested over \$300,000 to repair the roof of adjacent building 1. Montague was ultimately forced to take the Strathmore Mill in February 2010 for taxes owed and is the current owner. The Town is actively planning redevelopment of the 225,000 sq. foot former mill complex. On the Connecticut River in Downtown Turners Falls, the mill holds considerable potential as an ideal site for a business incubator, manufacturing, and warehousing uses.

1.2 Phase II ESA

The environmental investigation included the advancement of nine soil borings, two of which were completed as groundwater monitoring wells, and the laboratory analysis of groundwater and soil samples. The Phase I investigation identified exceedences in subsurface soils of the applicable Reportable Concentrations (RC's) for arsenic and polynuclear aromatic hydrocarbons (PAHs), thereby triggering a 120 day release notification requirement. The source of the PAHs has been attributed to coal, wood ash, and coal ash in the fill underlying the site. Arsenic was identified in one of the soil samples submitted for analysis, however, the calculated Exposure Point Concentration (EPC) for this metal was well below the applicable standards. A Class B-1 RAO was prepared for the site. It was determined by a Massachusetts Licensed Site Professional (LSP) that no further remediation is required under the Massachusetts Contingency Plan.

1.3 Hazardous Material Survey

An April 2005 Hazardous Materials Survey report (updated in 2014) documented the presence of asbestos and hazardous materials in specific buildings. It was a limited scope of work to identify easily accessible materials throughout the entire mill complex. In order to revise the initial 2005 cost opinion and account for site changes, in 2014 there was a supplemental investigation of accessible areas coupled with bulk sample collection of suspect materials was performed. Following collection, bulk samples were submitted to ProScience Analytical Services of Woburn, Massachusetts for analysis via polarized light microscopy (PLM) with dispersion staining in accordance with the EPA/600/R-93/116 method. These newly discovered materials, locations, approximate quantities and results are displayed in the revised Asbestos Inventory Table in Appendix A. Tighe + Bond also visually inventoried hazardous materials encountered throughout the site. These items generally consisted of fluorescent light tubes, oil filled ballasts, stored paints, chemicals and oils and oil filled equipment, etc. The following materials were identified as asbestos-containing in various quantities and locations through the entire mill: Transite, window glaze, window caulk, pipe thermal system insulation, pipe fitting insulation, tar covered insulation, boiler seams, boiler insulation, boiler gaskets, floor matting. The following hazardous materials were identified: light fixtures, hydraulic oil, household wastes, oils, paints, guano, various process chemicals, lead containing paints. Most of these materials are typically found in old mill buildings and can be readily disposed or recycled.

SECTION 2 ALTERNATIVES ANALYSIS

The objective of the remediation is to remove a health and safety hazard and provide the Town of Montague with a site that is closer to redevelopment. As previously discussed, PACM and hazardous materials had been observed in the former mill buildings during the Phase I and II ESA. An asbestos and hazardous material assessment, completed in 2014, confirmed the presence of these materials throughout the buildings.

Three remedial options have been evaluated for the remediation of the site. These three options are:

- No action
- Complete abatement of the mill complex
- Selective abatement of individual buildings based on their potential for re-use and/or funding availability

Each option was evaluated for its applicability to the site and its feasibility. Each option is discussed below. Building plans are included in the Appendix

2.1 No Action

The “no action” alternative is included in the evaluation as a standard to compare other remedial actions to in order to compare and contrast significant reduction in site risk, as necessary. For the “no action” option, the Town of Erving would not take any action to abate or remediate the issues identified at the site.

As previously stated PACM, hazardous materials, and LBP are present in the site buildings. Renovation of the buildings cannot proceed without abatement of these materials. While the buildings remain in good condition, the presence of these materials do not represent a risk to the public or the environment. However, due to the age and layout of the buildings it is unlikely that they can be re-used in their current state.

Extensive renovation and potential selective demolition may be required to meet the needs of a new owner. Abatement has to occur prior to either of those options.

Therefore, leaving the site in its current condition is not a potential option if the site is to be prepared for redevelopment. Based on these concerns, the “no action” alternative cannot be recommended.

Cost: No direct cost is associated with the “no action” alternative.

2.2 Complete abatement

This option includes abatement of the mill complex. As part of an evaluation of the former mill complex, the Town of Montague requested that a HBMA be conducted. The results of the HBMA are presented in the tables included in Appendix B. Based on that evaluation, an opinion of probable cost to abate the ACM and hazardous materials was developed.

To assist the Town with budgeting for asbestos abatement and hazardous material (OHM) management in the event renovation or demolition is undertaken, an opinion of probable abatement costs was prepared.

Some smaller contiguous building sections were combined due to the absence of interior building walls separating the floor spaces. These costs include mobilization and effort to access, abate, and dispose of the specified ACMs and OHMs. The Cost Opinion is as summarized in Table 2-1 below.

Supplemental site wide asbestos, hazardous materials and PCB audit:	\$12,000
Public project design for asbestos & hazardous materials abatement:	\$12,000
Assistance with project bidding, project award and submittal review:	\$3,000
Abatement phase project management:	\$30,000
Site wide asbestos abatement:	\$600,000
Site wide hazardous materials abatement:	\$45,000

Cost: \$702,000

2.3 Selective abatement

This option includes partial abatement of selected buildings based on their potential for re-use and redevelopment. It would also offer an option if insufficient funds were available to abate the entire mill complex. This option is flexible as it can be tailored to abate only those buildings that meet funding availability and/or building suitability.

The buildings composing the mill complex are currently in good condition. However, as the buildings age and remain vacant the likelihood that they will be adversely affected by weather (snow loads, storms, etc.) increases and those buildings that have not been abated would present a potential financial and health and safety issue if they collapsed. In addition, the cost to abating the complex piecemeal would increase the total cost for the project since each abatement phase would require additional bidding and contractor mobilization charges.

Cost: Dependent on the number of buildings selected for abatement per the opinion of probable cost

SECTION 3 COMPARATIVE ANALYSIS OF ALTERNATIVES

Based on the foregoing evaluation of remedial options, a comparative analysis was performed. The comparative analysis qualitatively ranked each alternative using the criteria indicated in Table 3-1 included at the end of this section. Each evaluation criterion was given a score for each alternative of 1, 2, or 3, with 1 being poor, 2 being average, and 3 being good. The individual scores were summed for each alternative to give a total score, with the highest score indicating the best option. The evaluation of remedial alternatives and this comparative analysis were performed based on existing data.

As expected, complete abatement and selective abatement had similar scores (60 and 55, respectively). The difference between the two options is that with selective abatement, additional effort will be required to complete the abatement of the remaining buildings pending future redevelopment and/or renovation. Based on the raw scores complete abatement would be the preferred remedial alternative. However, if the Town has a funding shortfall or other reason to only partially abate the former mill buildings selective abatement may also be an appropriate option.

3.1 Recommendations

Two feasible options are available to address the health and safety concerns at the former Strathmore Mill site. Both of these approaches, complete abatement and selective abatement, scored very similar in the comparative analysis included in Figure A. The selection of either remedial option would address the health and safety issues by abating the asbestos and hazardous materials in the buildings at the site. However, if selective abatement is selected as the remedial option the remaining buildings would require abatement, at an increased cost, in the future. In addition, if a structural failure occurred in one or more of the un-abated buildings, significant remedial costs would be incurred to clean-up the mixed waste.

A summary of applicable regulations for the project is included in Figure B - Applicable, Relevant, and Appropriate Requirements (ARARs), included at the end of this section.

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Comprehensive Analysis of Alternatives- FIGURE A
Strathmore Mill Debris Pile, Turners Falls, MA 01376

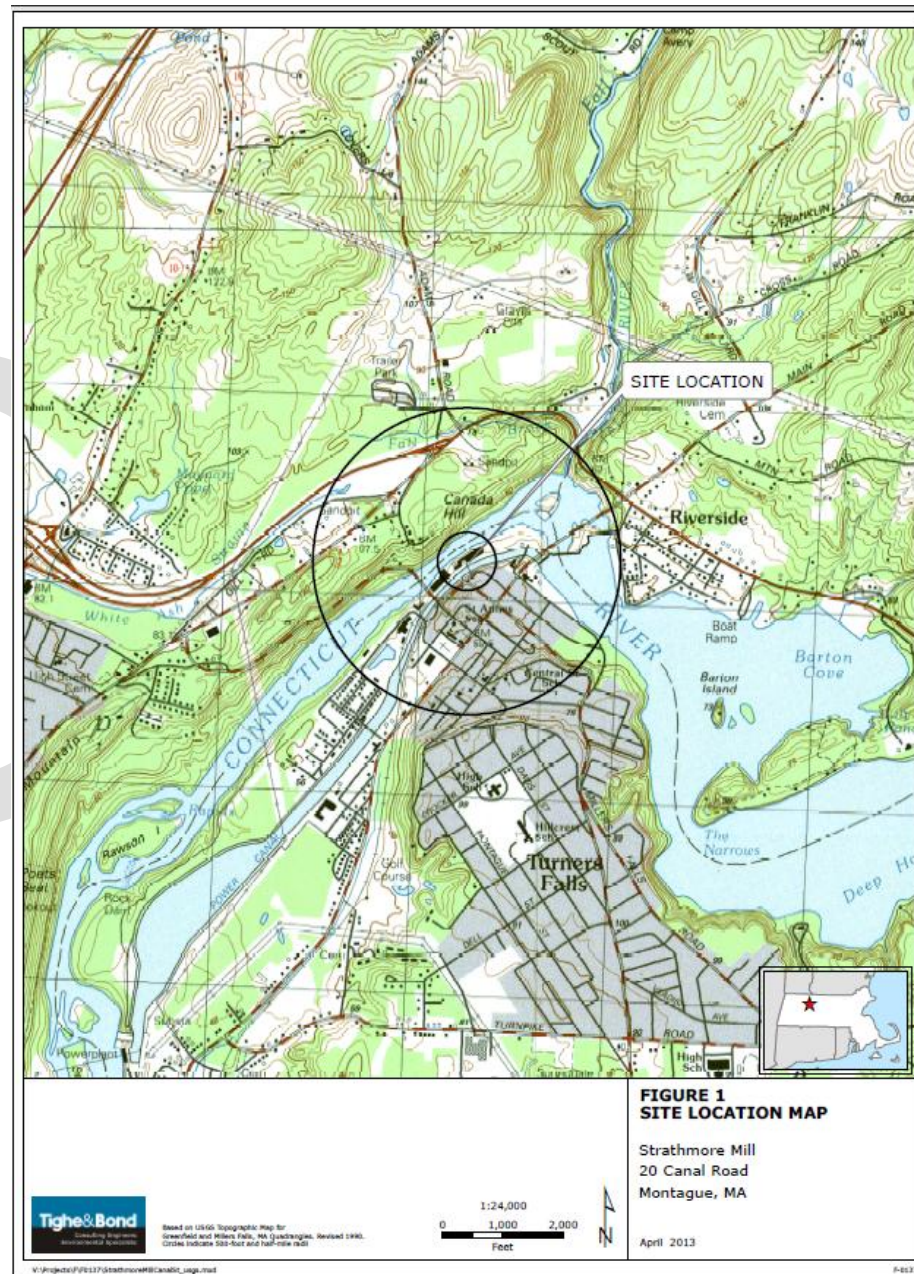
	No Action	Complete Demolition	Selective Demolition
Effectiveness			
Protectiveness			
Protective of public health & community	1	3	2
Protective of workers during implementation	NA	2	2
Protective of environment	1	3	3
Complies with ARARs	1	3	2
Ability to Achieve Removal Objectives			
Level of treatment/containment expected	1	3	3
No residual effects concerns	1	3	2
Enhance the redevelopment of the Strathmore Mill	1	3	2
Implementability			
Technical Feasibility			
Construction & operational considerations	NA	3	3
Demonstrated performance/useful life	1	3	3
Adaptable to environmental conditions	1	3	3
Contributes to remedial performance	NA	3	3
Can be implemented within one year	3	3	3
Can be implemented within two months	3	2	2
Availability			
Equipment	NA	3	3
Personnel & services	NA	3	3
Outside laboratory testing capacity	NA	3	3
Off-site treatment and disposal capacity	NA	3	3
Post removal site control	NA	3	3
Administrative Feasibility			
Permits required	NA	2	2
Elimination of existing public safety & building code violations	NA	3	2
Easements or right-of-way requirements	NA	NA	NA
Impact on adjoining properties	NA	3	3
Ability to impose institutional controls	NA	NA	NA
Likelihood imposed obtaining exemption from statutory limits if needed	NA	NA	NA
Total	14	60	55

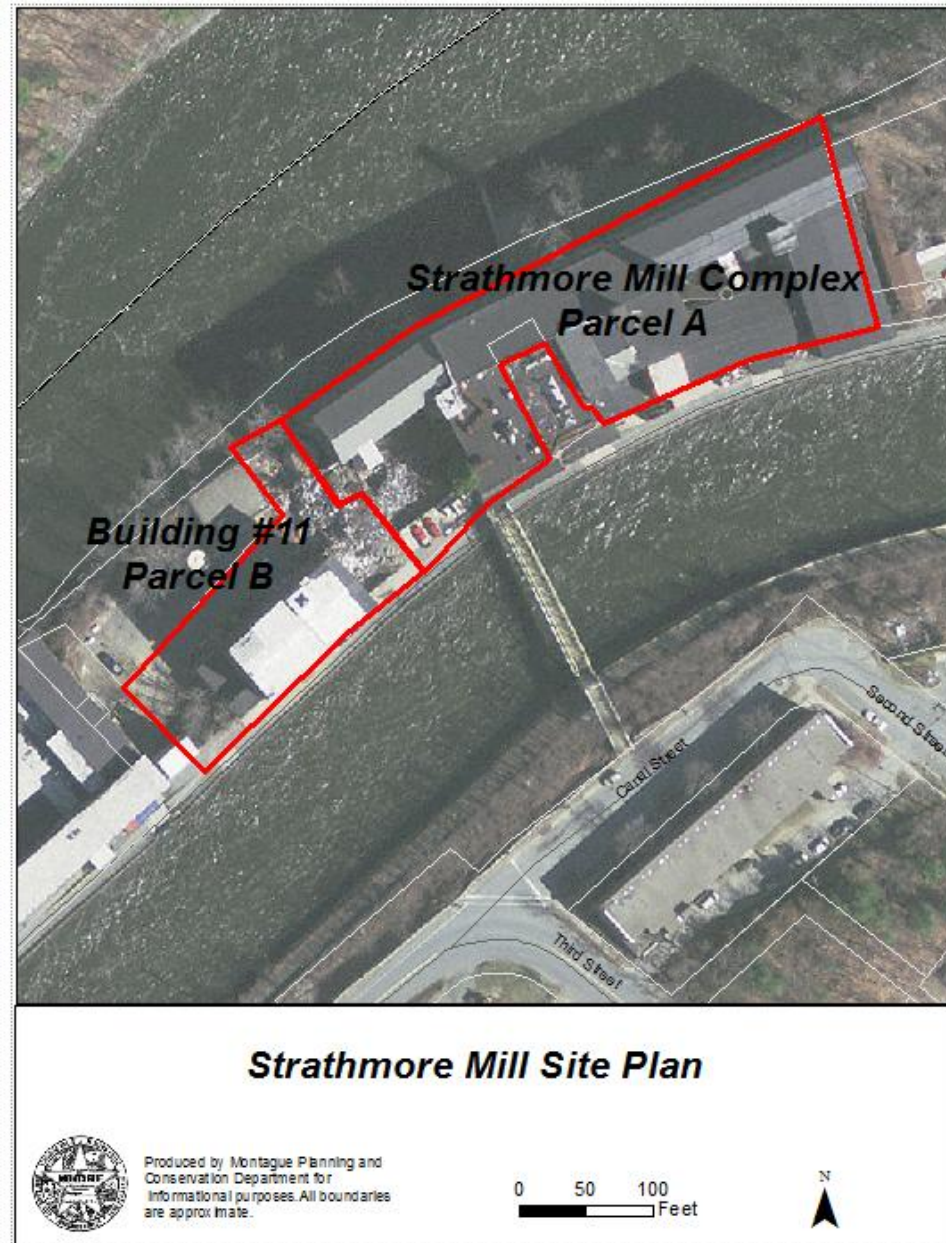
1=Poor; 2=Average; 3= Good NA= Not Applicable

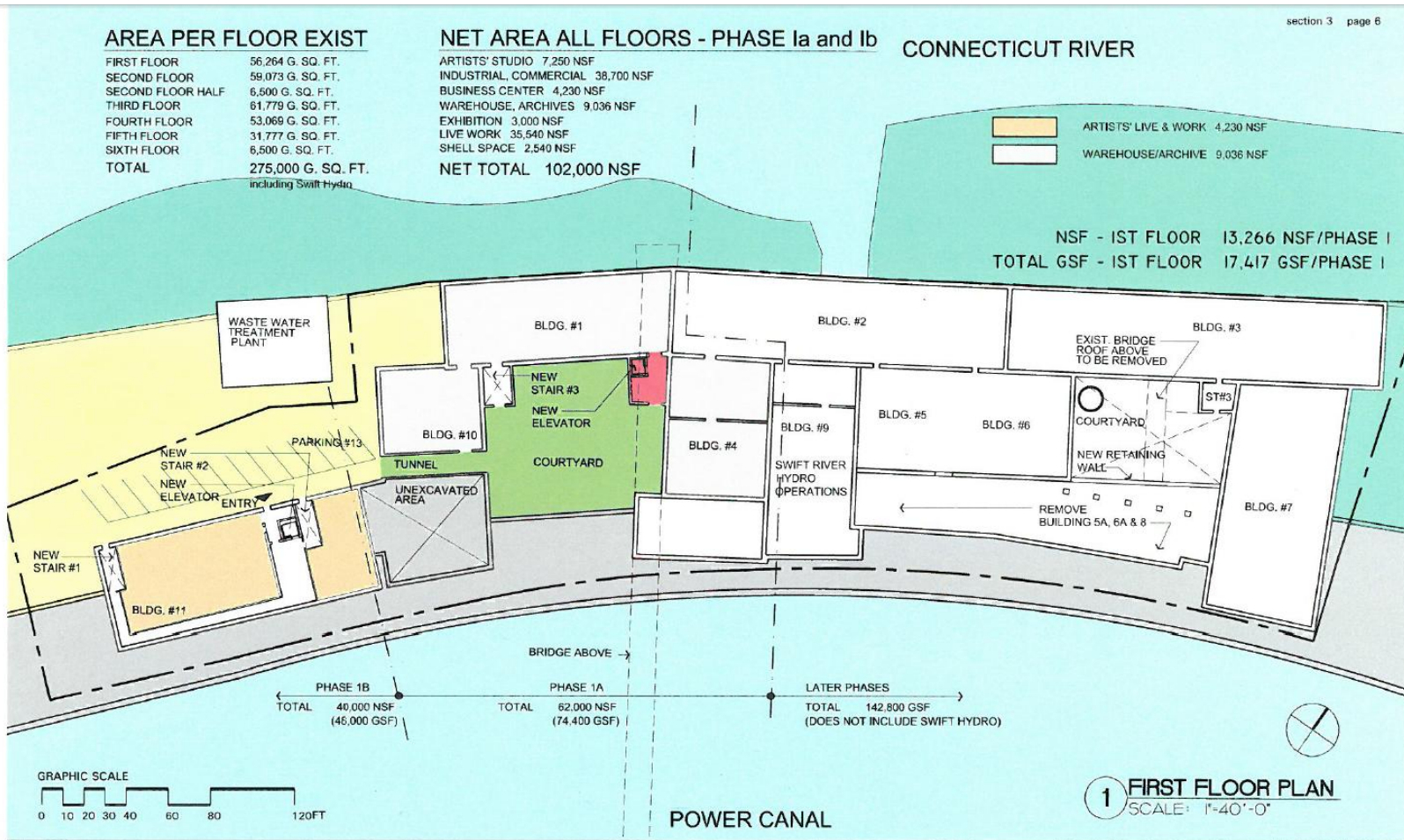
ARARs for the Recommended Alternative FIGURE B

ARARS	STATUS	MAJOR REQUIREMENTS	RECOMMENDED ALTERNATIVE ACTION
Massachusetts Contingency Plan (MCP) 310 CMR 40,0000	Not Applicable	Establishes methodology for evaluation and remediation of oil/hazardous materials, and cleanup standards for risk characterization.	A Response Action Outcome has already been submitted to DEP. No recent testing has been conducted to determine if reportable conditions exist at the site
USEPA Disposal of PCB's 40 CFR Parts 750 and 761	Not Applicable	Establishes methods and standards for the removal and disposal of PCB -impacted media and decontamination for PCB contaminated materials.	PCB's are not a contaminant of concern at the site
OSHA 29 CFR Parts 1926	Applicable	Regulates worker protection standards and exposures.	The recommended alternative will require the Contractor to prepare a Health & Safety Plan in accordance with OSHA standards.
Standards Applicable to Generators of Hazardous Waste, 49 CFR Part 362, Subpart C, Pre-Transport Requirements: §262.30 Packaging; §262.31 Labeling; and §262.32 Marking	Applicable	Regulates the preparation of hazardous materials.	The packaging, labeling and marking of asbestos and hazardous materials will be met by proper pre-disposal and pre-trucking methods by the Contractor, as specified in the Specifications, and assured through supervision and oversight of the Contractor by the Engineer and client representative.

Massachusetts Rivers Protection Act	Not Applicable	Regulates activities occurring within 200 feet of a river.	The site is located within 200 feet of the Connecticut River but this work is understood to be exempt under 310 CMR 10.58(6) as a Historic Mill complex. Requirements of this Act will have to be evaluated depending on the redevelopment alternative selected.
Clean Air Act - Federal	Not Applicable	Establishes program control land prevents airborne-particulates and toxic emissions and control volatile and other hazardous emissions.	Abatement activities will be conducted under specific emission controls including dust suppression and wetting.
Resource Conservation and Recovery Act and regulations	Applicable	Defines federal dangerous waste requirements for those who generate, store, treat or dispose of it. Key elements included requirements for and permitting of disposal facilities and land disposal facilities.	Some RCRA requirements could be relevant and appropriate including siting and operation requirements for dangerous waste disposal facilities. These requirements will be met by disposing of site materials at appropriately permitted facilities.







Finegold Alexander Associates Inc

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Tighe & Bond

FM ASSOCIATES

STRATHMORE MILL FEASIBILITY STUDY FOR THE TOWN OF MONTAGUE

Strathmore Mill Asbestos Inventory Table					
Building 1					
Sample ID	Location	Material Description	Quantity	Test Result	Comments
14-A,B,C	First floor	Sheetrock	-	Negative	Negative for asbestos.
15-A,B,C	First floor	Sheetrock tape and compound	-	Negative	Negative for asbestos.
16-A	First floor, above small offices, two locations	Pipe TSI and fittings	110 LF	Positive	The pipe TSI is located above the small offices along the side of the room. Pipe diameters range from 1/4" to 4". All pipe TSI and fittings shall be removed and disposed of as ACM.
17-A,B,C	First floor, above small offices	Air-G-Cell pipe TSI	20 LF	Positive	The pipe TSI is located above the small offices along the side of the room. Pipe diameter is 1/4". All pipe TSI and fittings shall be removed and disposed of as ACM.
25-A,B,C and A-19, A-20, A-21	Throughout all floors	Window glaze	110 Count	Positive	Initially tested negative, supplemental samples discovered ACM.
Same as 24-A,B,C	Throughout all floors	Window caulk	110 Count	Assumed Positive	All window caulking must be removed and disposed of as ACM. Windows are approx. 4' x 6' in size.
26-A,B,C	Second floor	Sheetrock and tape/compound	-	Negative	Negative for asbestos.
Assumed positive	Throughout all floors	Transite components	1/8 Cubic yard	Assumed Positive	Miscellaneous components inside electrical boxes throughout building. Approx. 15 locations.
Assumed positive	Second floor	Pipe TSI and fittings	120 LF	Assumed Positive	Pipe diameters range from 1"-4". All pipe TSI and fittings must be removed and disposed of as ACM.
27-A,B,C	Second floor, small room	12"x12" floor tile and mastic	-	Negative	The floor tile and mastic tested negative for asbestos.
39-A,B,C	Third floor office area hallway	White square pattern linoleum	-	Negative	The flooring tested negative for asbestos.
40-A,B,C	Third floor bathroom	Gray covebase and mastic	-	Negative	The covebase and mastic tested negative for asbestos.
41-A,B,C	Third floor bathroom	Gray spotted linoleum	-	Negative	The flooring tested negative for asbestos.
A-22, A-23, A-24	Third floor throughout	Wall panel adhesive	-	Negative	Adheres wall panels to wall.
A-25, A-26, A-27	Third floor stairwell	Plaster	-	Negative	
42-A,B,C	Third floor offices and hallway	6" brown covebase and mastic	-	Negative	The covebase and mastic tested negative for asbestos.
Assumed positive	Third floor near door	Pipe TSI	15 LF	Assumed Positive	Pipe TSI must be removed and disposed of as ACM.
49-A,B,C	Fourth floor	2'x4' ceiling tiles	-	Negative	The tiles tested negative for asbestos.
Assumed positive	Fourth floor	Pipe TSI and fittings	400 LF/50 fittings	Assumed Positive	All pipe TSI and fittings shall be removed and disposed of as ACM. Pipe diameters range from 2" to 12" pipe.
50-A,B,C	Fourth floor	Brown speckled linoleum floor and mastic	-	Negative	The flooring tested negative for asbestos.
Assumed positive	Attic	Pipe TSI and fittings	20 LF/5 fittings	Assumed Positive	All pipe TSI and fittings shall be removed and disposed of as ACM. Pipe diameters range from 2" to 12" pipe.
Assumed positive	Roof	Roofing and flashing cements	7,200 SF	Assumed Positive	Treat all roofing materials as ACM until bulk sampling proves otherwise.
Building 2					
7-A,B,C & A-37, A-38, A-39	Throughout all floors	Window glaze	-	Negative	
Assumed positive	Throughout all floors	Window caulk	150 Count	Assumed Positive	The window caulking must be removed and disposed of as ACM. Collect samples to confirm presence of ACM. Windows are approx. 6' x 4' in size.
Assumed positive	First floor, main area	Pipe TSI	70 LF	Assumed Positive	The pipe TSI must be removed and disposed as ACM. The insulation is on 2" - 6" pipes.
9-A,B,C	First floor, along ceiling above catwalk	Tar paper	-	Negative	White paper along ceiling

Sample ID	Location	Material Description	Quantity	Test Result	Comments
Assumed positive	Second floor, main steam line area	Pipe TSI	150 LF	Assumed Positive	The pipe TSI must be removed and disposed as ACM. The insulation is on 2" - 6" pipes and is wrapped in a metal jacket.
Assumed positive	Third floor	Pipe TSI and fittings	60 LF/6 Fittings & 1 Cubic yard debris	Assumed Positive	The TSI is in poor condition and is on the ground in a metal pile. The TSI has a metal jacket around it for protection. All debris and contaminated metals shall be disposed as ACM.
Assumed positive	Third floor, around spiral stairs	Transite	20 SF	Assumed Positive	All transite shall be removed and disposed of as ACM.
37-A,B,C	Third floor, ceiling	Transite	4,000 SF	Positive	Transite is attached to large sections of the ceiling throughout the third floor. All transite shall be removed and disposed of as ACM.
38-A,B,C	Third floor	Plaster and skim coat	-	Negative	Located on all of the columns and beams. Plaster contains a wire lathe for support.
A-31/31A, A-32/32A, A-33/33A	Third floor	12" Gray and white checkerboard floor tile and mastic	-	Negative	23' x 50' area.
Assumed positive	Fourth floor	Pipe TSI and fittings	500 LF/60 fittings	Assumed Positive	All pipe TSI and fittings shall be removed and disposed of as ACM.
Assumed positive	Fourth floor, electrical room	Pipe TSI and fittings	100 LF/10 fittings	Assumed Positive	All pipe TSI and fittings shall be removed and disposed of as ACM.
51-A,B,C	Fourth floor	Floor backing	-	Negative	The floor backing tested negative for asbestos.
Assumed positive	Fourth floor ceiling	Transite	1,700 SF	Assumed Positive	All transite that is attached to the ceiling shall be removed and disposed of as ACM.
Assumed positive	Roof	Roofing and flashing cements	8,000 SF	Assumed Positive	Treat all roofing materials as ACM until bulk sampling proves otherwise.
Assumed positive	Fifth floor	Pipe TSI and fittings	150 LF/15 fittings	Assumed Positive	All pipe TSI and fittings shall be removed and disposed of as ACM. Pipe diameters range from 2" to 12" pipe.
Building 3					
8-A,B,C & A-34, A-35, A-36	First floor	Window glaze	28 Count	Positive	Windows are 15"x3" and encased in concrete.
Assumed positive	First floor, upper level cat walk area	Pipe TSI	15 LF	Assumed Positive	TSI insulates 12" diameter pipe.
A-28, A-29, A-30	Throughout #3 stairwell	Window glaze	-	Negative	Windows are 4'x5'.
34-A,B,C	Third floor, bathroom by stairs	Linoileum flooring and mastic	-	Negative	The flooring tested negative for asbestos.
Assumed positive	Third, fourth, fifth and attic floors	Window caulk	125 count	Assumed Positive	All window caulking must be removed and disposed of as ACM. Window sizes are approx. 6' x 4'.
35-A,B,C	Throughout	Window glaze	-	Negative	Windows (primarily upper levels) are 6' x 4' in size. Additional samples of glazing should be collected to confirm as non-ACM.
Assumed positive	Third floor	Pipe TSI	10 LF	Assumed Positive	Metal jacketed TSI must be removed and disposed of as ACM.
Assumed positive	Fourth floor	Pipe TSI and fittings	450 LF/60 fittings	Assumed Positive	Pipe is 2"-8" inches in diameter. All pipe TSI and fittings shall be removed and disposed of as ACM.
53-A,B,C	Fourth floor	Sheetrock and tape/compound	-	Negative	The sheetrock and tape/compound tested negative for asbestos.
Assumed positive	Fifth floor	Pipe TSI and fittings	35 LF/5 fittings	Assumed Positive	All pipe TSI and fittings must be removed and disposed of as ACM.
Assumed positive	Roof, including 3a stairwell	Roofing and flashing cements	8,900 SF	Assumed Positive	Treat all roofing materials as ACM until bulk sampling proves otherwise.
Building 3A Stairwell					
13-A,B,C	First floor	Window glaze in door	-	Negative	The window glaze tested negative for asbestos.
54-A,B,C	Throughout all floors	Plaster and skim coat	-	Negative	The plaster and skim coat tested negative for asbestos.
Building 4					

Sample ID	Location	Material Description	Quantity	Test Result	Comments
10-A,B,C	Second floor	Black tar coating with cloth on duct work	120 SF	Positive	Fiberglass insulation, wire, and all associated material must be removed.
Assumed positive	Second floor	Pipe TSI and fittings	10 LF	Assumed Positive	1"-4" pipe diameter. Insulation is encased in metal jacket.
11-A,B,C	Second floor by columns	Fiberglass pipe wrap	-	Negative	1"-4" pipe diameter.
Assumed positive	Second floor	Window caulk	1 count	Assumed Positive	The window caulking must be removed and disposed of as ACM.
12-A,B,C	Second floor	Pipe wrap on fiberglass insulation	-	Negative	The pipe wrap did not contain asbestos.
Assumed positive	Second floor	Pipe TSI	40 LF	Assumed Positive	6"-12" diameter pipes. All insulation must be removed and disposed of as ACM.
Assumed positive	Third floor	Transite	7,250 SF	Assumed Positive	Entire ceiling has transite on it, some of it multi-layered. Remove and dispose of all transite as ACM.
Assumed positive	Third and fourth floor	Window caulk	30 count	Assumed Positive	Windows are replacement vinyl type and boarded up. Windows are approx. 4' x 6'.
Assumed positive	Fourth floor	Pipe TSI and fittings	30 LF / 10 fittings	Assumed Positive	All pipe TSI and fittings are to be removed and disposed of as ACM.
Assumed positive	Roof	Roofing and flashing cements	3,000 SF	Assumed Positive	Treat all roofing materials as ACM until bulk sampling proves otherwise.
Building 5					
1-A,B,C	First floor, Boiler room	Fiberglass insulation pipe wrap	-	Negative	
2-A	First floor, Boiler room	Pipe TSI	400 LF / 40 Cubic yards debris	Positive	1"-4" pipe diameter. All pipe TSI is to be removed and disposed of as ACM. Debris under and around piping systems has become co-mingled with building debris. It appears some piping has been abated since 2005 inspection.
3-A	First floor, Boiler room	Pipe fittings	60 fittings	Positive	1"-4" pipe diameter. All fittings shall be removed and disposed of as ACM.
4-A,B,C	First floor, Boiler room, oil pump system	Fiberglass insulations with white coating	-	Negative	Located on heat exchangers under metal jacket.
Assumed positive	First floor	Interior Boiler gaskets and rope insulations	(4) 4' x 5' x 5' boiler units	Assumed Positive	Associated with (4) HS smith metal clad boilers.
5-A,B,C & 6-A,B,C	First floor	Interior Boiler gaskets and packing insulation within old boiler system	300 cubic yards	Positive	(3) original boilers are 30"x20"x30" each. All boilers must be dismantled under containment. All boiler components, gaskets, etc. shall be disposed of as contaminated with ACM or fire cleaned and recycled.
Assumed positive	First floor, Boiler room	Breach insulation	75 LF	Assumed Positive	16" diameter breaching piping associated with main boiler system.
Assumed positive	First floor, Boiler room, oil pump system	Fittings	20 count	Assumed Positive	1" to 4" diameter fittings.
Assumed positive	First floor, Boiler room	Breach insulation	-	Assumed Positive	Initially quantified as 400 SF, has been abated.
Assumed positive	First floor, Boiler room	Breach and boiler gaskets	Throughout all boiler breaching	Assumed Positive	All metal mating surfaces shall be opened and cleaned of the ACM gasketing found between them.
Assumed positive	Fourth and fifth floors	Window glazing and caulking	18 Count	Assumed Positive	4' x 5' sized windows. Assume as ACM until bulk sampling proves otherwise.
Assumed positive	Fifth floor and attic	Transite panels	1,300 SF	Assumed Positive	Panels nailed in place to ceilings
Assumed positive	Fourth and fifth floor	Pipe TSI and fittings	90 LF / 10 fittings	Assumed Positive	The pipe TSI and fittings shall be removed and disposed of as ACM.
A-43/43A, A-44/44A	Fourth floor	12" Floor tile and mastic	375 SF double layered	Negative but treat as ACM	Top layer of double layered floor tile system. Bottom layer tested positive. Treat both layers as ACM due to inability to separate. Remove interior partitions, etc. to access.
A-45/45A	Fourth floor	9" Floor tile and mastic	255 SF	Floor tile positive, mastic negative	Applied on wood. Remove interior partitions, etc. to access.
Assumed positive	Fourth floor	Transite panels	300 SF	Assumed Positive	Panels nailed in place in office / locker area.

Sample ID	Location	Material Description	Quantity	Test Result	Comments
A-3, A-50	Fourth floor	Vinyl sheet flooring	-	Negative	Within office area, approx. 1000 SF.
Assumed positive	Attic	Pipe TSI and fittings	20 LF/2 fittings	Assumed Positive	The pipe TSI and fittings shall be removed and disposed of as ACM.
Assumed positive	Roof	Roofing and flashing cements	2,800 SF	Assumed Positive	Treat all roofing materials as ACM until bulk sampling proves otherwise.
Building 6					
Assumed positive (caulking) & A-40, A-41, A-42 (glazing)	Throughout	Window caulk and glazing compounds	15 count	Assumed Positive	All window caulking and glazing shall be removed and disposed of as ACM. Glazing tested positive for asbestos. Windows are approx. 6' x 4'.
Assumed positive	Third floor	Transite panels and components	450 SF & 2 Cubic yards	Assumed Positive	Located on ceiling and around spiral staircase. Components stored on pallets.
35-A,B,C	Third floor	Shotcrete and finish coating	-	Negative	pipe is 2"-5" inches in diameter. All pipe TSI and fittings shall be removed and disposed of as ACM.
52-A,B,C	Fourth floor	Floor matting	400 SF	Positive	Located on the floor of the room. Located under a significant amount of stored components and other wood flooring.
Assumed positive	Fourth floor	Pipe TSI and fittings	50 LF/10 fittings	Assumed Positive	The pipe TSI and fittings shall be removed and disposed of as ACM.
Assumed positive	Fourth and fifth floor	Transite	180 SF	Assumed Positive	Located around spiral staircase.
Assumed positive	Roof	Roofing and flashing cements	3,600 SF	Assumed Positive	Treat all roofing materials as ACM until bulk sampling proves otherwise.
Building 7					
Assumed positive	Second floor	Pipe TSI and fittings, TSI block & Debris	100 LF/100 SF mag block / 3 Cubic yards debris	Assumed Positive	The pipe TSI is in a metal jacket. There is also a significant amount of pipe and magnesium block debris (on floor and on ducts) that must be removed and disposed of as ACM.
Assumed positive	Second floor	Transite debris	1/2 Cubic yard	Assumed Positive	Broken transite panel debris observed on ground.
Assumed positive	Throughout	Window caulk	35 count	Assumed Positive	Windows are approx. 6' x 4'.
31-A,B,C	Third floor	Linoleum flooring and mastic	-	Negative	The flooring tested negative for asbestos.
32-A,B,C	Third floor	Brown covebase and mastic	-	Negative	The covebase and mastic tested negative for asbestos.
33-A,B,C	Throughout	Window glaze	-	Negative	The window glaze tested negative for asbestos.
Assumed positive	Third floor	Transite	2,500 SF	Assumed Positive	Transite is attached to ceiling.
Assumed positive	Fourth floor	Pipe TSI and fittings	120 LF/10 fittings	Assumed Positive	
Assumed positive	Roof 7/7A	Roofing and flashing cements	7,000 SF	Assumed Positive	Treat all roofing materials as ACM until bulk sampling proves otherwise.
Building 7A					
28-A,B,C	Second floor	12"x12" white floor tile and mastic	-	Negative	White and blue floor tile is mixed together.
29-A,B,C	Second floor	12"x12" blue floor tile and mastic	-	Negative	White and blue floor tile is mixed together.
30-A,B,C	Second floor, back room with pump pit	Transite wall	250 SF	Positive	Transite located in unsafe area. Special access plans necessary for safe abatement.
Building 8					
Same as 10-A,B,C	Second floor	Fan unit insulation, black tar coating	30 SF	Assumed Positive	All tar coating and insulation shall be removed and disposed of as ACM.
Building 10-Entire area has been abated, demolished and removed from site in 2012					
Building 11					
Assumed positive	First floor, throughout	Pipe TSI	120 LF	Assumed Positive	Two areas observed.
Assumed positive	First floor	TSI debris	1/2 Cubic yard	Assumed Positive	Debris was found in various locations throughout floor.

Sample ID	Location	Material Description	Quantity	Test Result	Comments
Assumed positive	West end lowest level, Mezzanine, second level	Transite panels	1,900 SF	Assumed Positive	Transite panels nailed to walls and ceilings throughout western area. Some small transite components throughout / within electrical boxes, all floors.
Assumed positive	Throughout	Transite components	1/4 Cubic yard	Assumed Positive	Transite panels nailed to walls and ceilings throughout western area. Some small transite components throughout / within electrical boxes, all floors.
A-01, A-02, A-03	Throughout	Paper	-	Negative	Under floorboards.
18-A,B,C & 19-A,B,C	Throughout	Window glazing and caulking	120 count	Positive	Windows are located throughout all levels and are approx. 6' x 5' in size or smaller. Treat all caulking as ACM.
Assumed positive	Second floor	Pipe TSI	120 LF	Assumed Positive	1"-6" pipe diameter.
20-A,B,C	Second floor	Fiberglass pipe TSI wrap	-	Negative	The pipe wrap did not contain asbestos. Located near hazardous waste collection area.
21-A,B,C	Second floor, bathroom stalls	9x9 gray floor tile and mastic	-	Negative	The floor tiles are in bad condition and most of them are already lifting.
A-04/04A/04B, A-05/05A/05B, A-06/06A/06B, A-07/07A/07B, A-08/08A/08B, A-09/09A/09B	Second, fourth and fifth floors	Sheetrock/ seam tape/joint compound	-	Negative	Comprises interior walls.
Assumed positive	Third floor	Pipe TSI and fittings	90 LF/8 fittings	Assumed Positive	4"-12" pipe diameter. Some of the pipe TSI is encased in a metal jacket. All TSI and fittings shall be removed and disposed of as ACM.
Assumed positive	Fourth floor	Pipe TSI and fittings	225 LF/35 fittings	Assumed Positive	4"-12" pipe diameter. Some of the pipe TSI is encased in a metal jacket. All TSI and fittings shall be removed and disposed of as ACM.
Assumed positive	Fourth floor	Transite	3,500 SF	Assumed Positive	Transite is attached to ceiling.
45-A,B,C	Fifth floor	12"x12" gray floor tile and mastic	325 SF	Negative	The floor tile and mastic tested negative for asbestos.
46-A,B,C	Fifth floor	Black cobestase and mastic	250 LF	Negative	The cobestase and mastic tested negative for asbestos.
47-A,B,C	Fifth floor	12"x12" tan floor tile and mastic	300 SF	Negative	The floor tile and mastic tested negative for asbestos.
48-A,B,C	Fifth floor	12"x12" brown floor tile and mastic	45 SF	Negative	The floor tile and mastic tested negative for asbestos.
49-A,B,C	Fifth floor	Sheetrock and tape/compound	4,500 SF	Negative	The sheetrock and tape/compound tested negative for asbestos.
Assumed positive	Fifth floor	Pipe TSI and fittings	50 LF/10 fittings	Assumed Positive	The pipe TSI and fittings shall be removed and disposed of as ACM.
Assumed positive	Sixth floor	Pipe TSI and fittings	35 LF/5 fittings	Assumed Positive	The pipe TSI and fittings shall be removed and disposed of as ACM.
A-10, A-11, A-12	Sixth floor	Red paper	-	Negative	Under floorboards.
Assumed positive	Roof	Glazing compound	(1) 10' x 10' skylight	Assumed Positive	Treat skylight as ACM until bulk sampling proves otherwise.
A-13, A-14, A-15, A-16, A-17, A-18	Roof	Roofing, flashing cements and silver paint layers	7,700 SF	Assumed Positive	Treat all roofing materials as ACM until bulk sampling proves otherwise.
Exterior areas					
Assumed positive	Courtyard outside building 3A	Breath insulation	-	Assumed Positive	Has been abated.
Assumed positive	Courtyard outside building 1	Pitting	-	Assumed Positive	Has been abated.
Notes: 1. Negative - A negative result contains no asbestos. 2. Positive - A positive result contains trace to greater than 1% asbestos or more. 3. Assumed Positive - Material that was not sampled but is assumed to contain asbestos. 4. Assumed Positive - Material that was not sampled but is assumed to contain asbestos. 5. Bolded Area - Any material that tested as trace, positive or assumed positive for asbestos. 6. SF - Square Feet 7. LF - Linear Feet 8. ACM - Asbestos Containing Material Supplemental limited asbestos survey performed by Brian F. Day, Tighe & Bond, December 2014. Massachusetts Inspector # A1061695.					